

PATENT COOPERATION TREATY

PCT

10/575194

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

Applicant's or agent's file reference 3264R-01-WO	FOR FURTHER ACTION	See item 4 below
International application No. PCT/US2004/033063	International filing date (day/month/year) 07 October 2004 (07.10.2004)	Priority date (day/month/year) 08 October 2003 (08.10.2003)
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237		
Applicant THE LUBRIZOL CORPORATION		

1. This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
2. This REPORT consists of a total of 6 sheets, including this cover sheet.

In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

3. This report contains indications relating to the following items:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report |
| <input checked="" type="checkbox"/> Box No. II | Priority |
| <input type="checkbox"/> Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI | Certain documents cited |
| <input type="checkbox"/> Box No. VII | Certain defects in the international application |
| <input type="checkbox"/> Box No. VIII | Certain observations on the international application |

4. The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis .2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland Facsimile No. +41 22 740 14 35	Date of issuance of this report 10 April 2006 (10.04.2006)
	Authorized officer Dorothee Mülhausen Telephone No. +41 22 338 87 40

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

REC'D 31 JAN 2005

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To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/US2004/033063

International filing date (day/month/year)
07.10.2004

Priority date (day/month/year)
08.10.2003

International Patent Classification (IPC) or both national classification and IPC
F01N3/023, F01N3/027, F01N3/035

Applicant
THE LUBRIZOL CORPORATION

1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☒ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



European Patent Office
D-80298 Munich
Tel. +49 89 2399 - 0 Tx: 523656 epmu d
Fax: +49 89 2399 - 4465

Authorized Officer

Tatus, W

Telephone No. +49 89 2399-2693



**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/033063

Box No. 1 Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
 - ☐ a sequence listing
 - ☐ table(s) related to the sequence listing
 - b. format of material:
 - ☐ in written format
 - ☐ in computer readable form
 - c. time of filing/furnishing:
 - ☐ contained in the international application as filed.
 - ☐ filed together with the international application in computer readable form.
 - ☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/US2004/033063

Box No. II Priority

1. ☐ The following document has not been furnished:

- ☐ copy of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(a)).
- ☐ translation of the earlier application whose priority has been claimed (Rule 43bis.1 and 66.7(b)).

Consequently it has not been possible to consider the validity of the priority claim. This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

2. ☐ This opinion has been established as if no priority had been claimed due to the fact that the priority claim has been found invalid (Rules 43bis.1 and 64.1). Thus for the purposes of this opinion, the international filing date indicated above is considered to be the relevant date.

3. ☒ It has not been possible to consider the validity of the priority claim because a copy of the priority document was not available to the ISA at the time that the search was conducted (Rule 17.1). This opinion has nevertheless been established on the assumption that the relevant date is the claimed priority date.

4. Additional observations, if necessary:

**Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or
Industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Yes: Claims	
	No: Claims	1,3-6,9,13-15,18
Inventive step (IS)	Yes: Claims	
	No: Claims	2,7,8,10,11,12,16,17,19,20
Industrial applicability (IA)	Yes: Claims	1-20
	No: Claims	

2. Citations and explanations

see separate sheet

Re Box V.

The following documents are referred to in this communication:

D1 : US 4 404 795 A (KOBASHI KIYOSHI ET AL) 20 September 1983 (1983-09-20)

D2: GB 892 659 A (SCHWEIZERISCHE LOKOMOTIV) 28 March 1962 (1962-03-28)

D3 : US 4 902 309 A (HEMPENSTALL GEORGE T) 20 February 1990 (1990-02-20)

Document US 4,404,795 (D1) describes, see column 4, line 36 to column 10, line 32 and the figures 2 and 5, subject matter of the claims 1, 3 to 6, 9, 13 to 15 and 18.

These claims lack novelty (Art. 33(2) PCT).

The application includes two independent claims which differ in the kind of adding gaseous oxygen or air to the exhaust gas.

Claim 1 : superatmospheric-pressurized source of gaseous oxygen, US 4,404,795 (D1)

Claim 12: atmospheric air as source of gaseous oxygen drawn into the exhaust system by a venturi pipe, GB-A-892,659 (D2)

A system as described in claim 12 is known from GB-A-892,659, see claim 1.

GB-A-89,659 (D2) also reveals subject matter of claims 1, 2, 4, 5 and 18 (Art. 33(2) PCT).

The remaining dependent claims include generally known features in the technical field of exhaust gas treatment systems which a skilled person would apply without performing an inventive step (Art. 33(3) PCT).

Claim 7: To use in a system as described in claim 1 a gas having an oxygen content greater than 21 % by volume (air) to 99% by volume, namely enriched air is known from US 4,902,309 (D3), see abstract.
US 4,902,309 also reveals subject matter of claims 1, 3 to 7 and 18 (Art.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/US2004/033063

33(2) PCT).

Claim 8: A permeable membran for oxygen enriched gas (US 4,437,606, cited in the description of the application, page 6).

Claim 10: Using a wall-flow ceramic monolith wherein the coating comprises 5 to 150 g/ft³ catalyst metal.

Claim 11: The catalyst metals

Claim 16: EP 1 333 169 A1

Claim 17: EGR-system

Claim 19: A temperature decrease for regeneration by 1 to 200° C

Claim 20: An increased regeneration rate

At present the most pertinent prior art document seems to be US 4,404,795 (D1), which describes subject matter of the claims 1, 3 to 6, 9, 13 to 15 and 18 (Art.33(2) PCT).

An obvious combination of D1 with GB-A-892,659 (D2) (same technical field, other kind of adding gaseous oxygen or air to the exhaust gas) would result in subject matter of claims 7 and 8 (Art.33(3) PCT).

The remaining dependent claims include generally known features in the technical field of exhaust gas treatment systems which a skilled person would apply without performing an inventive step (Art. 33(3) PCT).